



Preparing the Crop on a Feather Farm.

capri (or male fig) be transferred to the Smyrna (or female). This is accomplished by the fig wasp, which breeds in the capri. In June it passes out of the capri, with its body and wings covered with pollen from the male, or staminate blossoms, and forces its way through an almost closed orifice into the Smyrna, thus fertilizing the female flowers.

For a number of years a nurseryman at Fresno has made a specialty of rearing fig wasps, safely housed in their native capri fig homes, and selling them to fig growers all over the State. Not long ago seven capri fig trees at Stockton were found to be literally alive with fig wasps, showing that the little insect with the big name is becoming thoroughly acclimated in California. George C. Roeding of Fresno has contracted for all the fruit the seven Stockton trees will produce, paying therefor the price of one cent a fig. Of themselves capri figs are worthless; but the presence of the *Blastophaga* gives them their value; making them, in fact, indispensable to the California fig producing industry.

#### The Farming of Animals

EVERYONE knows the high prices that shopkeepers demand for pocketbooks, belts, shopping bags, suitcases, and other articles made of genuine alligator leather. It was this knowledge that induced H. I. Campbell, a few years ago, to start the first alligator farm ever attempted in the world. His initial experiment was opened at Hot Springs, Arkansas. Not long afterwards some one else started one at Palm Beach, Florida, and a little over a year ago Campbell opened a third at Los Angeles. This indicates that alligator farming is a success. However, as a rule it has been found more profitable to sell live alligators than to kill them for the sake of their hides.

If ostriches can be reared for their feathers, and alligators for their hides, why not raise beaver, foxes and other fur producing animals for their furs? That also has been tried, with varying success. A number of years ago a large beaver farm was started in Canada, north of Lake Superior; but this proved a failure. A great fox farm is successfully operated on an island off the coast of Labrador, by Revillon Brothers of Paris, where silver foxes are reared in large numbers. On one of the Aleutian Islands a blue fox farm has been operated successfully for ten years; and red foxes are reared at smaller fox farms in Maine and West Virginia.

Skunk farms have been started at various places in the West, and some of these have yielded satisfactory profits. Of all fur farming industries, none seems more peculiar than cat farming. This is followed on a large scale in Holland, where cats are reared for their fur. This is dyed and otherwise doctored in imitation of chinchilla, the finest of all furs that come from South America.

It was a knowledge of what has been accomplished in the way of specialized fur farming that has encouraged the organization of the American Game Association of Denver for the purpose of engaging in diversified fur and game farming on a large scale. The farm is located nine miles from Denver, at Littleton, comprising twelve hundred acres of land, on which it is proposed to rear beaver, foxes, deer, elk, buffalo, Rocky Mountain sheep and goats, antelope, and other wild animals. Some species will be reared for their furs, some for the sake of their flesh, and some for both hides and meat.

A report of the Division of Biological Survey of the United States Department of Agriculture says, "As civilization encroaches upon the breeding places of wild animals, the supply of fur diminishes, and prices correspondingly increase. If furs as articles of use and adornment are not soon to disappear from general use, methods must be devised for rearing fur bearing animals in captivity. Another official publication of the Biological Survey contains the following statements, "Deer farming may be made profitable alike to the State and the individuals engaged therein. The raising of venison is as legitimate a business as the growing of beef and mutton."

It seems highly probable, therefore, that game farming and fur farming are industries that have come to stay, of which we will hear much in the future.

#### Poultry and Pheasants

SPECIALIZED poultry farms are common. Long Island has scores of duck farms and a few goose farms, and turkey farms are numerous in Rhode Island

and Texas. The largest pigeon farm in the world is at Los Angeles, and the largest pheasant farm on the Western Hemisphere is close to Denver. This is conducted by W. F. Kendrick of Denver. As this article is written, more than thirty thousand pheasant eggs are in process of incubation at the Kendrick place, and several hundred of the little birds are coming out of the eggshells daily. The birds are sold to individuals and game associations throughout the United States, Canada, and Mexico, either for breeding purposes or for liberation to stock the country. Many varieties of these useful insectivorous game birds are reared; but the Chinese ring-neck is considered the most desirable. It is hardy in any part of the United States, and its insectivorous habits make it a true friend of the farmer.

Pheasant farming is an occupation particularly attractive to women. The work is light and interesting. After the essential first principles have been learned, it is no more difficult to rear pheasants than it is to care for chickens or any other kind of poultry, and the profits are far larger. It is estimated that insect pests destroy farm crops to the value of six hundred and sixty million dollars annually. The figures seem incredible; but they are supplied by the National Conservation Commission. Much of this drain upon agricultural production could be prevented by the general stocking of the country with insectivorous birds, most valuable of which is the pheasant. If every farmer in America would liberate one or more pairs of Chinese ring-necks on his farm, his crops would show an improvement, and he would find it in the long run the best investment of a few dollars he ever made.

#### A Gold Brick for Bees

BEE farming—for the sake of honey—is as old as history; but the rearing of queen bees for sale is comparatively new. America now literally supplies the world with queen bees. The queen bee farms of Ohio and Pennsylvania ship their high born queens to England, France, Germany, Austria, Russia, South America, Japan, and every other country on the globe. In other days the great difficulty about breeding queen



Baby Alligators at the Hot Springs Farm.

bees was the fact that the bees would permit only one queen in a hive. But the bee breeders of America have beaten Nature at her own game, and now breed as many queens as they wish. It is done by what is called the "feeding in artificial nuclei."

There are three kinds of bees in every hive,—workers, drones, and the queen. These are produced from two kinds of eggs, fertilized and unfertilized. The unfertilized egg will produce nothing but a drone; but the fertilized egg may produce either a queen or a worker, this depending absolutely on whether the larva is fed upon the royal jelly reserved for queens, or upon the plebeian breakfast food of the working class. The kind of food the workers supply to larvae is determined by the kind of cells they occupy.

If the larvae are in queen cells, they are given royal jelly and no questions. Here is the opportunity of the breeder of queen bees to goldbrick the denizens of the hive and deceive them into rearing many hundreds of queens when they have no conceivable use for more than one.

The breeder makes a supply of imitation queen cells, using either wood or wax. These resemble acorns, and are made with the greatest care, in order to deceive workers in the hive. Into each of these artificial cells the breeder places a larva. When the workers come along they see the queen cell occupied by an embryo bee, and proceed forthwith to feed it on the food reserved for royalty. When six days old the changeling princesses refuse to eat more food, and their cells are capped over.

The breeder may thus start a hundred or more queens on the way to development; but if he permitted them all to be hatched in the hive there would be hot times in bee society. So the frame is removed and placed in a specially arranged incubator, where the hive temperature is maintained. In seven days the queens emerge from their cells, and are then placed in "nuclei," which are nothing but miniature hives, in which each queen is given a bodyguard of ten workers.

The queen bee enjoys the distinction of being the only living creature that is permitted to travel in the United States

mails. Her journeys are made in a little parlor car constructed out of blocks of wood, in which three connecting holes are bored with an auger. Over the top of the holes a wire screen is securely nailed. She is accompanied by a retinue of attendants, regulated as to number by the distance she has to travel. In this little receptacle queens may be shipped from the bee farm to anywhere.

The largest bee farm in the world is that conducted by M. Quirin, at Medina, Ohio, where thousands of queens are reared annually. It may surprise readers to be told that there are upward of three hundred thousand beekeepers in the United States.

#### HANDS BETTER THAN MACHINES

PROBABLY most people entertain the notion that machinery is responsible for the greater part of articles in everyday use; but it is a great mistake to assume this. There are many manufactures and forms of trade wherein the machine plays an insignificant rôle and wherein articles are made in about the same way as they have been for hundreds of years. In these instances even the most ingenious of machines has been unable to supplant the worker by hand.

A notable case is that of cutlery manufacture in England. An inspection of the great cutlery works of Sheffield, generally thought to turn out the finest articles of that kind, will disclose an almost entire absence of machinery; that is, as far as the finest articles are concerned.

The manufacture of gold leaf is another example. This product is still made in what is probably the identical manner employed by the first man to turn it out. Strips of gold are beaten entirely by hand, and for good reason, inasmuch as no machinery can be imagined that would efficiently perform this delicate task. Indeed the machine would be required to think before each blow. Gold leaf in process of manufacture soon becomes so delicate that a single wrong blow would destroy it. Then, too, each strip of gold needs special treatment of its own. A machine would of course give practically the same treatment to every strip. And the delicate operation of lifting and packing the finished product could hardly be done by a machine.

The process of making pottery is the same followed for ages. True, many advances have been made in details; but the hand of man still reigns supreme in the domain of pottery. The implements used are of the simplest, it might almost be said of the crudest. As in the case of gold leaf, no machine can be trusted to exercise the nice discrimination necessary in dealing with widely varying materials.

Machinery plays little part in the glass trade. Visitors to glassworks have time and again remarked upon the apparent awkwardness and antiquity of the processes employed. Inventors have for a long time exercised their wits to devise machinery calculated to supersede the glassblower's lungs; but to no avail.

In many parts of the world glove making is entirely a hand trade. It is contended by many manufacturers that no machine yet devised can cut out a glove properly; for the reason, it is said, that such a machine is incapable of discriminating between good and bad, thick and thin, pieces of leather, each of which calls for special treatment.

In the manufacture of the best corks, little is trusted to machinery. Those intended for champagne are never turned out otherwise than by hand. The ordinary cork of commerce is made by machinery; but, as special qualifications are needed in the champagne cork, this work must be left to the skilled hand worker, who must take into account all kinds of blemishes in the cork.

The leather whereof the best boxing gloves are made is another article entirely the result of hand work. Machinery is useless in this industry.

In the manufacture of parchment the hand of man is all important.

The black edges of mourning note paper are in many cases the product of direct human labor.

The manufacture of straw hats, Panama hats, and similar articles in most cases cannot be trusted to a machine, which statement also applies to most basket making, and to the manufacture of the wicker covers around jars and bottles.



Swimming Pond on a Duck Farm.